The Cary Arboretum

of The New York Botanical Garden

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Winter and Spring Courses Offered at Arboretum

Want to discover the intimate world of close-up photography, learn the art of beekeeping, or prepare to reap the rewards of a backyard fruit garden?

You can, by enrolling in any of these new, exciting courses offered during the next few months at the Arboretum.

The courses offer a relaxed atmosphere, with small classes and highly qualified instructors from both the community and the professional staff at the Arboretum.

Courses vary in length from one session to six sessions. The winter/spring educational series begins in late January and continues through May.

The scheduled courses are as follows:

HOME FRUIT GARDEN
A three-session course on how to select, plant and maintain fruit trees, shrubs, and vines for optimum fruit production. The final class will be a Saturday outing to observe an actual local commercial fruit operation.

Instructor: Alex Pearl, Arboretum greenhouse staff member.
Schedule: Begins January 26: Three two-hour sessions – 7:30-9:30 p.m.

GETTING INTO PLANTS – FOR ALL AGES
Discover how a new plant grows from seed or rooted cutting. Primarily for families with children in grades 4-6.

Instructors: Paul Mihan and Pat Leone, Arboretum greenhouse staff members.
Schedule: Begins February 3: Three sessions – 7:30-9:00 p.m.

BEEKEEPING FOR THE AMATEUR
How to start a backyard apiary, including recommendations on necessary equipment and seasonal management of the established hive.

Instructor: Frederick Stutz, retired area beekeeper.
Schedule: Begins February 22: Six sessions – 7:30-9:00 p.m.

PLANT PROPAGATION
Learn how to propagate plants by such methods as seed, cuttings, layering, and division.

Instructors: Paul Mihan and Bonnie Fiero, Arboretum greenhouse staff members.
Schedule: Begins March 3: Three sessions – 7:30-9:30 p.m.

MAPLE SUGARING
Watch sap being boiled into confectionary delights. Taste fresh maple syrup, sugar, and jackwax, made in the traditional way.

Instructors: Dr. Peter Dykeman and James Stevenson of the Arboretum education department.
Schedule: March 12 and 13: Two sessions – 2-4 p.m.

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Antique Farm Tool Collection Is Given to Arboretum

An early 20th century collection of farm tools from the Barn Museum at the Davison Millbrook Pheasant Farm has been donated by Mrs. C. Beverly Davison to the Cary Arboretum during a formal presentation at the Arboretum's Gifford Carriage House.

The collection consists of more than 200 assorted farm tools and other items, many of which saw actual use on the famous pheasant farm.

Many of the interesting items have lost their usefulness in today's society – for example, an ice cutter, a hook for a wooden horse-drawn snowplow, and a wagon wheel wrench. Also included in the display is equipment used specifically in operating a pheasant farm – a helmet painted red for guiding pheasant shooting parties on rainy days, a pheasant brooder, and pheasant nets. There are a few pieces that do not fit into either category, like a 1908 Sears catalogue, a horse-drawn toboggan with "Body by Brewster," and a rare item in today's inflationary world – a penny postcard.

This fine assemblage of tools from the collection of Mrs. C. Beverly Davison's late husband, will be used by the Arboretum for educational purposes. Students at the Arboretum, as well as public visitors, will be given opportunities to see the collection, which now is displayed in the Carriage House behind the Gifford House, soon to become the educational center for the Arboretum. It is expected that some items may be used elsewhere at the Arboretum or may even be loaned to other museums and educational institutions.

Mrs. C. William O'Brien of the Town of Washington Historical Society was instrumental in making plans to have the tools donated to the Arboretum.

Arrangements for visitors to see the collection can be made by contacting Dr. Peter A. Dykeman, coordinator of education at the Arboretum.

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Reading the Winter Landscape

A DETECTIVE STORY WRITTEN ON SNOW

by James M. Stevenson, Arboretum Education Assistant

An animal's life story can be as exciting to read as a Sherlock Holmes novel. Yet, because most members of the wildlife kingdom never relax their shy and secretive behavior towards man, we rarely are aware of how near these unseen animal neighbors are, nor are we even conscious of the many little daily dramas which beset these elusive creatures.

Only an experienced naturalist-detective can unlock some of these mysteries. That is, until it snows. It is then that the barren hillsides open into a white-paged book which most observant people can easily learn to read. Stories of life, death, and frantic escapes for freedom are told in animal snow tracks. These stories not only make fascinating reading on winter days, but they also help satisfy our curiosity about the wildlife around us. And even though most of us will never become the Sherlock Holmeses of the naturalist set, we can, with a little assiduous practice and study of animal tracks, become reasonably proficient backyard detectives.

As we start our backyard search of animal tracks and stories, we probably will encounter footprints made by prey animals – rabbits, squirrels, mice, etc. These prolific breeders are more abundant than hunting creatures, and sometimes find sanctuary in bushes, trees, and stone walls near our homes.

Footprints of the cosmopolitan gray squirrel are probably the most common and easy to recognize in suburban and rural areas. The name of this vivacious and vocal creature derives from two Greek words, *skia,* meaning "shadow" and *oura,* "tail." The Latin equivalent is *Scirus,* for which a liberal translation might be "a creature that sits in the shadow of its tail." The squirrel's leaping gait can best be compared to a rabbit, since the bodies of both animals are brought into jackknife positions as their front feet hit the ground. The hind feet are then swung forward to land ahead of the front tracks, and the great strength of the rear legs is used to propel the next leap. At a fast pace, each leap may carry the animals as much as five feet forward.

A rabbit's trail can be distinguished from the squirrel's by noting the placement of the front feet. Rabbits put one forefoot in front of the other when running, in contrast to the usual side-by-side pattern of tree-climbing squirrels.

Another prey animal frequently found near our homes leaves a trail of tail-prints as well as footprints. It's the only Northeastern mammal to bear immature young, carrying them in an external pouch, or marsupium, until development is complete. This animal is, of course, the opossum. The Algonquin Indian name for it was "apasum." One large toe, opposed to the four smaller ones on the hind foot, leaves an unmistakable 'possum print. The 9½-to-15 inch prehensile tail often leaves a steady sinuous drag mark, though in deep snow this tail-trail may be reduced to short marks on one or both sides.

Peromyscus, a generic name meaning "pouched little mouse," refers to a group of closely related, white-footed mice. These curious and fascinating creatures are active throughout the year, though during winter months they may travel no more than 30 feet from their nests. During the cold season these small rodents betray their presence with many signs. Since white-footed mice are able to climb low shrubs, they frequently make use of abandoned birds' nests, either for caching seeds and nuts or for conversion into mice homes by adding a dome-shaped roof. When travelling, the long slender tail of this little mouse will usually leave drag marks. Tiny footprints found in the snow are likely to be their sign.

The smallest mammals are shrews – some weigh no more than a dime. These energetic and aggressive animals, often mistakenly called "sharp-nosed little mice," are members of the Order Insectivora, as are the English hedgehog and our native mole. "Shrew" comes from the Anglo-Saxon word *screawa,* which was applied to the Common Shrew of Europe. Shrews, which have a poisonous bite, are very nervous creatures with such voracious appetites that they sometimes consume their full body weight in food each day. Because of this, these swift moving creatures must remain active year-round. When the ground is covered with snow, they tunnel *under* the snow rather than leap over it. These burrows often look as though snow had fallen on a large rope .

As we wander further from our homes, we will probably notice trails of hunting creatures. Predators are usually more reclusive and less tolerant of man than the prey they seek. Many are aerial hunters like the great horned owl and the red-tailed hawk, whose story often is revealed in the wisp of a wing-print or in the "dead-end" trail of an unsuspecting mouse or rabbit.

Ground hunters leave decipherable tracks along hedgerows and farm meadows, where they prefer to hunt their prey – mice, pheasant, and an occasional chicken. A typical ground hunter is the red fox, which, because of his grace and intelligence, has attracted the attention of artists, naturalists, and writers, in addition to the wrath of poultry farmers.

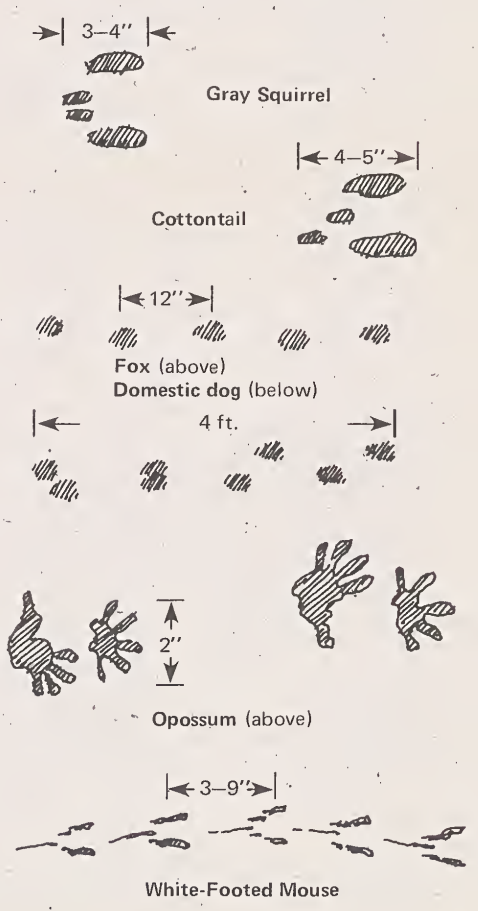
In spite of his striking and colorful beauty, however, the red fox cannot afford to attract attention from the prey he seeks. So this hunting animal, whose livelihood depends on stealth, must move as quietly as possible. As it trots along, each hind foot lands directly in the front footprint and thereby minimizes the chances of snapping a twig by a clumsily placed paw. The pads of the fox's feet are almost entirely concealed by hair in winter. This keeps the fox from sinking into the snow – in effect its hairy footpads serve as miniature snowshoes.

A walking house cat will place the hind foot in the front paw track, resulting in a single, straight row of prints. Domestic dogs, on the other hand, tend to amble along in an irregular pattern. The difference between cat and dog or fox is, of course, the absence of claw marks in the cat print.

Some local wildlife almost never leave a trail in snow. These are the "Seven Sleepers," to whom Winter dictates that they enter a state of inactivity during the cold months. The true hibernators, of course, include the woodchuck, chipmunk, jumping mouse, and certain species of bats. Body temperature, heart rate, and respiration rate are greatly reduced in these animals during this quiescent period. The "deep sleepers," on the other hand, differ from hibernators insofar as they maintain body functions at near normal levels, and can come to life quite quickly when their sleep is disturbed. In this category are the raccoon, skunk, and bear.

Reading animal tracks is sometimes puzzling for the novice outdoorsman. For example, a long line without any footprints is made by snow falling from an overhead wire, while snow that has dropped from twigs and branches also make strange patterns. But, with practice, the winter tracker can easily learn to recognize these "false clues." Also, a track on light snow will frequently be unlike that made by the same creature in deep snow. Wherever the warming sunlight touches a patch of snow, the track becomes enlarged and distorted, and the front foot is generally a different shape or size than the hind foot. This, too, is occasionally confusing, while variations due to the sex and age of an animal add still another piece to the puzzle.

To know wild animals by the footprints they make on a snow-covered landscape is the first step in learning how to read these intriguing winter mystery stories. Though field guides and texts can help the backyard detective identify the basic clues, careful observation, practice, and patience are really the best teachers in the art of reading between the tracks.



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CARNIVOROUS PLANTS – WHAT, WHERE, AND WHY?
These fascinating plants, adapted for capturing insects, can even be grown on a window sill.

Instructors: Dr. Thomas Elias and Robert Hebb of the Arboretum staff.
Schedule: Begins March 19: Two sessions – 10-12 noon.

ALL ABOUT MINIATURE ROSES
Students will have the opportunity to examine mature, flowering plants, and then repot and take home newly marketed specimens.

Instructor: Lily Shohan, member of New York State Rose Society.
Schedule: April 16: One session – 10-3 p.m.

FIELD BOTANY
This field-oriented course is designed to familiarize participants with our local flora.

Instructors: Dr. Edson Setliff, Dr. Peter Dykeman, and James Stevenson of the Arboretum staff.
Schedule: Begins April 17: Six sessions – 2:00-4:00 p.m.

PHOTOGRAPHING NATURE CLOSE UP
How to get the best use of your camera, lenses, and other photographic equipment in the pursuit of nature photography.

Instructor: Leslie Hyde, local camera enthusiast.
Schedule: Begins April 19: Five sessions – 7:30-9:30 p.m.

VOICES OF THE NIGHT
How to recognize the chorus of wood frogs or spring peepers – where to find them and what they look like.

Instructor: Dr. Peter Dykeman, coordinator of the Arboretum education program.
Schedule: April 21: One session – 7-10 p.m.

HERB GARDENING
A beginners' course in the fascinating subject of knowing, growing, and harvesting herbs. Includes a field trip to some of the area's established herb gardens.

Instructors: Marion Lukens, herb gardener, and Alex Pearl, Arboretum greenhouse staff member.
Schedule: Begins April 26: Five sessions – 10 a.m.-12:30 p.m.

ALL ABOUT WARBLERS
Warblers in their spring plumages can be readily identified by their colors, songs, and habits. For both beginning and experienced bird-watchers.

Instructors: Marion Van Wagner and Aline Romero, members of the Waterman Bird Club.
Schedule: Begins May 6: Two Sessions – 8-12 noon.

MOSSES – A WORLD IN MINIATURE
Participants will observe and collect in the field these diminutive members of the plant kingdom. The specimens will then be examined more closely in the classroom.

Instructor: Dr. William Steere, Senior Scientist at the New York Botanical Garden
Schedule: May 7: One session – 10 a.m. - 3:00 p.m.

BIRDS AT THE CARY ARBORETUM
Two Saturday field trips are scheduled. Register for either or both. Observe the early migrants, as well as the residents. Bring binoculars.

Instructor: Jay McAninch, Arboretum staff member.
Schedule: May 21 or June 11: Two sessions – 9:00-11:30 a.m.

WALKS FOR THE ENTIRE FAMILY
See tracks in the snow, observe tiny spring wild flowers, early migrating birds, and much more. Bring hiking shoes, binoculars, and/or camera.

Schedule: To be announced in spring brochure.

REGISTRATION
Pre-registration is required for all courses and walks. Enrollment is limited; so register early. To obtain course and fee information and to register, phone the Education Office at 677-5348 or write to the Education Center, Cary Arboretum, Box AB, Millbrook, New York 12545.

NOTE: Friends of the Arboretum receive a 20 percent discount on all registration fees.

Urban Trees: Will They Survive?

Trees in public places represent a vital link between man and his environment. So imagine, for a moment, how empty and cold a city would become if all the trees lining its streets were to disappear.

Such a barren city could be a future reality, if steps are not taken to curb the decline of urban trees, say Dr. Howard Irwin, president of the New York Botanical Garden, and Dr. Thomas S. Elias, an assistant director of the Cary Arboretum, in their provocative article "Urban Trees," appearing in the November issue of "Scientific American."

The Botanical Garden botanists are now waging a scientific battle to save millions of trees lining our city streets and parks.

But why are city trees dying? In the article, Drs. Elias and Irwin assert that the long-term problems are twofold: the adverse city environment and insufficient diversity of tree species planted in cities have led to the downfall of most urban trees.

Consider, they say, the stresses that bear on the average street tree. Growing beneath multistoried buildings is like being situated at the base of a rocky canyon – hardly an ideal tree-growing location. Little sunlight finds its way beyond the tall slabs of concrete and brick. Trees must also adjust to fluctuating levels of ventilation. The canyon-like skyscrapers cause contrasting atmospheric changes: oppressive stagnant air on one day, and concentrated, redirected air, creating gales of wind, on another.

The urban tree must also endure smog and often too little or too much water. Frequently, the water which reached the root systems is contaminated with dog urine and de-icing salt – both potential tree killers.

Finally, the small volume of urban soil available to street trees is often inadequate and lacks humus. It also is usually so compacted that air spaces between soil particles scarcely allow either water or air to reach the tree's roots. The soil may also contain rubble, inhibiting normal root growth. The tree pits may be traversed by toxic metal pipes or steam conduits, exposing roots to lethal heat.

But most important of all, a botanical time bomb now exists in our cities that could be even more deadly to urban trees than pollution. It's a lack of a diverse number of tree species in cities.

Several years ago the Dutch elm disease virtually wiped out the magnificent American elm tree that once graced city streets throughout the eastern United States. The "Scientific American" article warns that a similar disaster could hit other species in cities today.

Large, closely assembled populations of one species are particularly susceptible to rapid buildup and spread of disease or insect attack. For example, in nearby Poughkeepsie, a typical small city, Dr. Elias found in his 1974 survey that 57 percent of the 8,027 street trees are Norway maples, 11.6 percent are flowering crabapples, and another 11.2 percent are sugar maples. These three species comprise almost 80 percent of all street trees in that city. Thus, in theory, a future disease attacking maples, for example, could wipe out 68.2 percent of Poughkeepsie's street trees.

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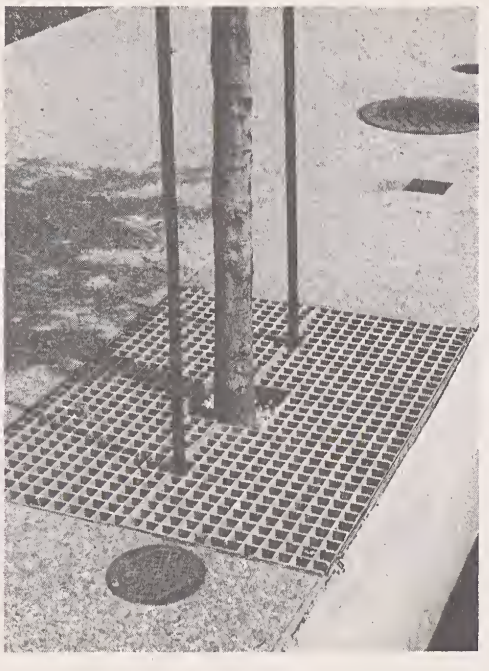
Example of properly installed tree grate.



Guatemala Energy Report: Cary Scientists Recommend Limiting Use of Atomic Energy

A year ago last month Guatemala was struck by a devastating earthquake. Much of the destruction caused by the big tremors might have been avoided if an environmental assessment report on Guatemala, just published by the Cary Arboretum, had been available to the Guatemalans before the quake struck.

Two scientists from the Arboretum, Drs. Robert Tillman and Robert Goodland, travelled to Guatemala at the request of that country's government in the fall of 1975 – weeks before the earthquake – to evaluate Guatemala's 25-year master plan for energy development.

Their report includes suggestions to the Guatemalan government or to any earthquake-prone nation contemplating construction of atomic energy plants or large-scale energy producing facilities.

Drs. Tillman and Goodland recommend limited use of atomic energy in Guatemala, because the proliferation of radioactive material during a major earthquake could be more hazardous than the quake itself. They also encourage new construction of decentralized small-scale, electric-producing installations, in part on the theory that an earthquake could black out the entire country if its power supply depended on a few massive facilities.

In addition to their recommendation on numbers and types of facilities, the two scientists also point out the need for less dependence on nonrenewable resources like oil and for future development of energy from the sun. They also advocate that Guatemala, like most nations today, must limit its use of energy so that demand will not outstrip supply.

The Tillman-Goodland report also argues that new construction of energy installations in countries like Guatemala must proceed in harmony with their environment, land, air, water, and wildlife. Economic development, the authors say, is not incompatible with sound environmental safeguards.

Copies of "Guatemala National Energy Plan: Environmental Assessment" are available from Dr. Robert Goodland, Cary Arboretum, Box AB, Millbrook, New York 12545, at $5.00 a copy including postage and handling.

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What is being done to save our urban trees from pollution and disease? Saving city trees is a high priority project at the Arboretum. Here, in the confines of experimental laboratories and greenhouses, Arboretum scientists are setting up special chambers to test various tolerances to different air pollutants.

The effort to save urban trees goes beyond the scientific laboratory. Dr. Elias helped draft the Urban Trees Act that was introduced into the U. S. Congress last September. The bill, being sponsored by Senator Jacob Javits, Representative Fred Richmond, and Representative Hamilton Fish, Jr., would authorize an appropriation of $10 million and would direct the Secretary of Agriculture to match dollar-for-dollar private contributions made to cities to plant trees. The Secretary would also be authorized to match 50 percent of the public funds that cities allocate for tree planting and maintenance. Action on this bill is expected when Congress reconvenes.

Cary Film Now Available for Showing

The 25-minute color film "A Gift of Land," depicting the scientific, horticultural, environmental, and educational work now taking place at the Arboretum, is available for showings by local organizations, without charge. Arrangements can be made by writing the Public Affairs Department, Cary Arboretum, Box AB, Millbrook, New York 12545, or by calling 914-677-5071.

Volunteers Needed for Visitors Program

The Arboretum is making plans to open the Greenhouse-Nursery area and the grounds to visitors one day a week. Guided tours in the Greenhouse would be provided by volunteers. Anyone interested in acting as a volunteer guide and willing to attend training sessions to prepare for guide service is invited to call Dr. Peter Dykeman at 677-5348.

THE CARY ARBORETUM
of
THE NEW YORK
BOTANICAL GARDEN

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